 Replaced by Article 34

DISPENSER DEVICE

The present invention relates generally to materials handling and in particular to apparatus for dispensing materials in fine powder form, such as for example toner.

Known methods of dispensing materials in powdered form incorporate funnel-shaped devices, wide at their inlet and narrow at their outlet, and generally utilise gravity for dispensing material. However, fine powders in these systems can often form blockages and jam in the funnel, stopping material flow. Agitating means are used to unblock the funnel or prevent blockages, but require energy, labour, maintenance, and may be noisy and costly.

The present invention seeks to alleviate at least some of the abovementioned disadvantages.

According to one aspect of the present invention, there is provided a dispenser device including: a dispenser device body having an inlet end and an outlet end; a transport passage arranged therebetween, wherein the cross-sectional internal dimension at the inlet end of the transport passage are equal to or smaller than the cross-sectional internal dimension at the outlet end of the transport passage; at least two sealable connector sections, located at or near the inlet and outlet ends, the device when in use being sealingly connectable with filler vessels and unfilled vessels respectively.

The arrangement is such that the sealable connection between said dispenser device and said unfilled vessel provides a substantially air tight seal so that air within the unfilled vessel is displaced by powder from the filler vessel, and passes through the transport passage during a filling operation. This provides for a significant advantage in that the air causes agitation of the material within the passage, reducing the chances of clogging and blockage.

The sealable connecting section may be any suitable shape, and may take

WE CLAIM:

1. A dispenser device including: a dispenser device body having an inlet end and an outlet end; a transport passage arranged therebetween, wherein the cross-sectional internal dimension at the inlet end of the transport passage are equal to or smaller than the cross-sectional internal dimension at the outlet end of the transport passage; at least two sealable connector sections, located at or near the inlet and outlet ends, the device when in use being sealingly connectable with filler vessels and unfilled vessels respectively.

2. A dispenser device according to claim 1, wherein the sealable connection between said dispenser device and said unfilled vessel provides a substantially air tight seal, so that air within the unfilled vessel is displaced by powder from the filler vessel and passes through the transport passage during a filling operation.

3. A dispenser device according to claim 1 or 2 wherein the sealable connecting section is in the form of threaded portions, foam or rubber strips, light friction fits, or flat or contoured plates which correspond to the connector surface of the unfilled vessel.

4. A dispenser device according to any previous claim wherein the transport passage includes rounded shoulders at its inlet end.

5. A dispenser device according to any previous claim wherein the inner surface of an inner wall of the transport passage is a continuous generally smooth tapered configuration, tapering outwardly from the inlet end towards the outlet end.

6. A dispenser device according to any previous claim wherein the contour formed by an inner wall of the transport passage differs from the contour formed by an exterior wall of the transport passage.

7. A dispenser device according to any previous claim wherein an exterior wall of the transport passage is shaped to correspond to an inlet or access portion of the unfilled

vessel, thereby incorporating the sealable connector section.

8. A dispenser device according to any previous claim wherein the dispenser device body is constructed from suitable plastics, machinable or mouldable, or from suitable metals or metal alloys.

9. A dispenser device according to any previous claim wherein the device is constructed from more than one port or more material.

10. A dispenser device according to any one of the preceding claims wherein a locating means is provided to locate with a retaining portion on the unfilled vessel.

11. A dispenser device according to claim 10 wherein the locating means is in the form of one or more projections mounted on the external periphery of the dispenser device.

12. A dispenser device according to claim 11 wherein clips are used to locate with the retaining means to retain the device against the unfilled vessel.

13. A dispenser device substantially as hereinbefore described with reference to the accompanying drawings.